ENVIRONMENTAL ASSESSMENT

LUNING SOLAR ENERGY RIGHT-OF-WAY GRANT

DOI-BLM-NV-C010-2009-0017-EA
NVN-85215

BLM
Stillwater Field Office, Carson City, NV

U.S. Department of the Interior
Bureau of Land Management
Carson City District
Stillwater Field Office
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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

DOI-BLM-NV-C010-2009-0017-EA
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FINDING OF NO SIGNIFICANT IMPACT AND DECISION RECORD FOR

Luning Solar Energy Project

Environmental Assessment
DOI-BLM-NV-C0100-FY09-0017-EA

INTRODUCTION

The Luning Solar Energy, LLC has applied to use public land for a proposed solar energy generation site. The new construction would provide renewable electrical energy to the central area of Mineral County, Nevada. Rights-of-way on public land are authorized by the provisions of Title V of the Federal Land Policy and Management Act (90 Stat. 2743; 43 U.S.C. § 1701). The environmental analysis (EA) considered two alternatives; the Proposed Action and the No Action Alternative. The Proposed Action is the preferred alternative for this action. EA DOI-BLM-NV-C0100-FY09-0017-EA is incorporated by reference in the Finding of No Significant Impact.

PLAN CONVROMANCE AND CONSISTENCY

The Proposed Action has been reviewed for conformance with the Carson City District Office Consolidated Resource Management Plan (2001) and is found to be consistent with current Bureau of Land Management policies, plans and programs.

FINDING OF NO SIGNIFICANT IMPACT DETERMINATION

Based on the analysis of the Luning Solar Energy Right-of-Way Grant Project environmental assessment (EA) DOI-BLM-NV-C0100-0017-EA, I have determined that the action will not have a significant effect on the human environment and an environmental impact statement (EIS) will not be prepared. This finding is based on the context and intensity of the project as described:

Context:

The proposed action involves the placement of a solar energy project to provide renewable electrical power to the central area of Mineral County, Nevada. This action is very limited in scope and has no international, national, regional, or state-wide importance. The proposed action is important to the local residents as it will provide both renewable electrical energy and employment in the local economy.

Intensity:

The Council on Environmental Quality (CEQ) regulation include the following ten considerations for evaluating intensity:

1) *Impacts that may be both beneficial and adverse.*
None of the environmental impacts discussed in detail in the EA are considered significant, nor do the effects exceed any known threshold of significance, either beneficial or adverse.

2) *The degree to which the selected alternative will affect public health or safety:*
The location of the proposed project is remote and will not have a significant impact on public health and safety.

3) *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.*
There are no park lands, prime farm lands, wetlands, wild and scenic rivers or ecologically critical area in or near the proposed project site.

4) *The degree to which the effects on the quality of the human environment are likely to be highly controversial.*
The effects of the proposed action on the human environment will be negligible and not controversial.

5) *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*
The effects of the proposed action not complicated and risks will be minimal.

6) *The degree to which the action may establish a precedent for future actions with significant effects or presents a decision in principle about a future consideration.*
The proposed action of producing renewable energy (solar, wind and geothermal) is a routine use of public land and will not establish a precedent.

7) *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*
This action is not related to other actions.

8) *The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*
As described in the EA the proposed action has been examined and will not have any significant impact on National Register of Historic Places or significant scientific, cultural or historic resources.

9) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under ESA of 1973.*
The proposed action will have no impact on an endangered or threatened species or its habitat.

10) *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*
The proposed action does not violate any known laws or requirements that serve to protect the environment.

DECISION

It is my decision to approve the action as described in the Proposed Action of the environmental documentation cited above along with the mitigating measures contained in the EA:

Teresa J. Knutson
Field Manager
Stillwater Field Office

8/6/09
Date

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APPENDICES

LIST OF ACRONYMS

AMSL	Above Mean Sea Level
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practices
CEQ	Council on Environmental Quality
CRMP	Consolidated Resource Management Plan
CSU	Control Surface Use
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
FLPMA	Federal Land Policy Management Act
JBR	JBR Environmental Consultants, Inc.
KOP	Key Observation Point
MBTA	Migratory Bird Treaty Act
MW	Megawatt
MWh	Megawatt-hours
NAAQS	National Ambient Air Quality Standards
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
ROW	Right-of-Way
RPS	Renewable Portfolio Standard
SIP	State implementation plan
TL	Time Limited
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management

I. INTRODUCTION/PURPOSE AND NEED

INTRODUCTION

Luning Solar Energy, LLC (Luning Solar) is applying for a Right-of-Way (ROW) grant to construct, operate, and maintain a solar energy project (Proposed Action) on public land managed by the Bureau of Land Management (BLM). The project would be located on approximately 575 acres in Mineral County, 2 miles north of Luning, Nevada on State Route 361 (SR361) (Figures 1 and 2). The project would be capable of producing approximately 110,000 megawatt-hours (MWh) of renewable energy annually with a gross output of 50 megawatts (MW) and a nominal net generating capacity of 10 to 15 MW. A new 120-kilovolt (kV) transmission line would connect the facility to the Table Mountain Substation, which is owned by NV Energy.

Luning Solar's technology would include a selection of solar power concentrators, photovoltaic solar panels, or other emerging technology. The project would be built in stages beginning in 2010 with a 10-MW facility covering 80 to 110 acres depending on the technology selected. Subsequent generating facilities would be added depending on project economics.

BACKGROUND

The primary objective of the project is to construct, operate, and maintain an efficient, economic, reliable, safe, and environmentally sound solar-powered generating facility. The site selected is in an area of the state where excellent solar resources exist. In addition to having a world-class resource, development of Nevada's solar infrastructure is being driven by the Renewable Portfolio Standard (RPS) adopted by the Nevada legislature.

LOCATION OF PROPOSED PROJECT

The project would be located in Township 8 North, Range 34 East (T8N, R34E), S½SW¼ Section 15; S½S½ Section 16; N½N½ Section 21; N½N½ Section 22. A 150-foot-wide electric power transmission corridor would extend from the project site to the existing Table Mountain Substation in the SE¼ Section 23, T8N, R34E, a distance of approximately 4,662 feet.

PURPOSE AND NEED

The project is designed to meet the increasing demand for clean, renewable electrical power. The solar energy resource potential in the United States is greater than that of any other industrialized nation. The multiple benefits associated with developing this resource have been recognized by both federal and state policy-makers. Development of solar resources reduces reliance on foreign sources of fuel, promotes national security, diversifies energy portfolios, and contributes to the reduction of greenhouse gas emissions.

Nevada enacted the RPS as part of its 1997 restructuring legislation. Under the standard, the state's investor-owned utilities must use eligible renewable energy resources to supply a minimum percentage of the total electricity they sell. The RPS requires Nevada's electric utilities to generate or acquire a minimum of 5 percent of electricity sold to retail customers from renewable energy systems in 2003 and 2004, increasing by 2 percent biennially to 15 percent by 2013 and 20 percent by 2015. Construction and operation of the project would contribute to achieving Nevada's RPS goals as well as providing jobs in the local economy.

In addition to its environmental benefits, the project would contribute much needed on-peak power to the electrical grid that serves the western United States. The demand for power continues to grow in the West, and as older technology fossil-fuel plants reach the end of their useful lives there is a benefit in replacing them with clean, reliable energy sources. The project responds to this need.

The decision to be made by the BLM is to issue a ROW grant for the project and the terms or conditions of that grant. The need for the action is established by the BLM's responsibility under the Federal Land Policy and Management Act of 1976 (FLPMA) to respond to a request for a ROW grant for use of public land.

LAND USE CONFORMANCE STATEMENT

The proposed action and alternative described in this document are in conformance with the Carson City District are in conformance with the Carson City District Consolidated Resource Management Plan (2001), Standard Operating Procedures, ROW-4, pp 1-16.

RELATIONSHIPS TO STATUTES, REGULATIONS, AND OTHER PLANS

Mineral County issued a Special Use Permit to Luning Solar Energy, LLC on June 3, 2009, with conditions as set forth by the Planning Commission. The proposed project is consistent with all federal laws and regulations.

II. PROPOSED ACTION AND ALTERNATIVES

PROPOSED ACTION

Luning Solar's technology would include a selection of micro-concentrated solar power, well-established photovoltaic solar panels, inflated concentrators, or other emerging technology. The solar panels, troughs, or other solar receptors would be anchored to the ground in a way that minimizes grading and permits mounting above existing vegetation. The project would be built in stages beginning in 2010 with a 10-MW facility covering 80 to 110 acres. Subsequent generating facilities would be added depending on project economics. The availability of water may be a limiting factor in selecting the type of solar technology used.

Collector Technologies

Solar power technology is evolving rapidly, and various systems are being evaluated for use in the project. Differences among systems include the footprint of the arrays, whether water or other fluid is used for heat transfer or cooling, and the means of converting solar energy to electric energy suitable for transferring to the existing grid. A brief description of the systems being considered follows.

A typical 10-MW SunPower photovoltaic system includes 2,778 tracker modules mounted on pads, drive motors, switchgear, and DC to AC inverters. Each panel is approximately 7 feet wide by 28 feet long, mounted about 2 feet off the ground on concrete pads. The panels would be mounted on a north-south axis, and the north end would be tilted up approximately 20 degrees for maximum efficiency. The height of the north end of the panels would be approximately 14 feet above ground level. A 10-MW SunPower system would cover approximately 80 acres.

Another photovoltaic system under consideration is manufactured by Amelio Solar. A typical 10-MW amorphous silicon thin film photovoltaic system is comprised of panels 4.5 feet long by 3.2 feet wide and weighing 54 pounds each. The panels have four mounting posts would cover approximately 108 acres. These panels would be mounted closer to the ground than SunPower and because they do not have axis tracking, would be set facing south at an angle of about 30 degrees.

The 20-MW Sopogy solar parabolic trough system uses approximately 20,000 collectors that are 12 feet long, 5 feet wide, and 4 feet tall and mounted about 13 inches off the ground. Hot water from the Sopogy system drives a steam turbine/generator that produces AC power.

Another system under consideration is from Cool Earth Solar. This system uses inflated, balloon-shaped concentrators made of plastic film with a transparent upper hemisphere and a reflective lower hemisphere. When inflated, the concentrator naturally forms a shape that concentrates sunlight onto a water-cooled photovoltaic cell placed at the focal point. This approach allows for a much smaller footprint compared with other technologies.

Ancillary Facilities

Ancillary facilities include an approximately 2,400-square-foot maintenance and equipment storage building and a prefabricated caretaker residence. The caretaker residence would have propane heating and a solar electric system with backup power supplied by a propane-powered generator, a residential well, and a septic system. A 6-foot chain link fence would be installed

around facilities as they are constructed, and access to the site would be controlled by a gate. High voltage equipment would be separately fenced with warning signage. The parking area around the residence and maintenance building would be treated to prevent weeds and covered with gravel. All necessary gravel would be obtained from commercial sources.

Because SR361 crosses the site, an underground highway crossing is proposed for electric power transmission lines and any necessary utilities.

Employment

Projected employment during the construction and operation phases is shown in the table below. The number of employees required for operations depends to some degree on the type of technology selected. The systems under consideration are simple to construct and very low maintenance. Routine maintenance consists of cleaning and inspection; equipment would be repaired or replaced as needed.

Projected Employment

Project Phase	Construction	Operations Cumulative Total
Phase I 10 MW—Construction (4 months)	8	
Phase I 10 MW—Operations		2-3
Phase II 20 MW—Construction (8 months)	8	
Phase II 20 MW—Operations		3-5
Phase III 20 MW—Construction (8 months)	8	
Phase III 20 MW—Operations		5-7

Connection to Electric Power Grid

Connection to the electrical grid would be made at the NV Energy Table Mountain Substation in the southeast corner of Section 23, T8N, R34E. An Interconnection Feasibility Study was completed by NV Energy on November 3, 2008, for 50 MW of generation. The study concluded that no significant negative impacts would be imposed on the NV Energy transmission grid from the proposed interconnection if it were constructed as proposed. Luning Solar is in the interconnection queue for 50 MW.

A new 120-kV transmission line would be constructed on a 150-foot-wide corridor to connect the project site to the existing substation. The approximately 4,662-foot-long transmission line support structures would be wood pole H-frame construction.

Reclamation

At the end of the useful life of the project, the solar panels and associated equipment will be removed from the site. Any structures will be demolished and all debris will be removed. Any water wells will be capped in accordance with State regulations. After removal of all equipment and structures the ground will be smoothed by disking and planted with a BLM-approved mix of grasses and shrubs.

RESOURCE PROTECTION MEASURES

The applicant will implement the following environmental protection measures as established by regulation, policy, or guidance to prevent unnecessary and undue degradation of the environment during construction and operation of the project.

- Air Quality. Luning Solar will obtain a surface area disturbance permit from the NDEP Bureau of Air Pollution Control and construct and operate the site in accordance with permit conditions.
- Cultural Resources. Luning Solar will inform all persons working in the project area that knowingly disturbing cultural resources or collecting artifacts is prohibited.
- Cultural Resources. Luning Solar will ensure that any cultural resources discovered in the process of construction are protected by halting work within 100 meters of the discovery until the BLM issues a Notice to Proceed.
- Cactus plants will be avoided if possible. With BLM approval, cactus plants that cannot be avoided will be transplanted to nearby suitable habitat.
- Livestock grazing. Luning Solar will coordinate with BLM and allotment holder to minimize potential conflicts with the permittee's operaton of the Luning Corral.
- Luning Solar will treat new infestations of invasive, non-native weeds promptly to prevent them from being spread off-site.

NO ACTION ALTERNATIVE

Under the No Action alternative, no new ROW grant would be authorized by the BLM.

OTHER ALTERNATIVES CONSIDERED

Luning Solar investigated the possibility of constructing a transmission line west to California to connect with an electrical distribution system owned by ArcLight Capital Partners. Luning Solar was unable to come to agreement with ArcLight. Because this alternative was determined to be not feasible it was not carried forward for analysis.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter identifies and describes the current condition and trend of elements or resources in the human environment that may be affected by the Proposed Action as well as potential environmental consequences.

SCOPING AND ISSUE IDENTIFICATION

BLM personnel identified key issues and concerns regarding the Proposed Action at an internal scoping meeting March 9, 2009. Luning Solar presented the project to the Mineral County Commission at a meeting on May 6, 2009. The public was offered the opportunity to comment and ask questions at the meeting. The project was generally well received and no issues were raised. The public did have two additional opportunities for comment at the Special Use meetings in Hawthorn. These meeting were public noticed and held at the County facilities in May.

GENERAL SETTING

The project area is in Soda Springs Valley, which is bounded by the Gabbs Valley Range on the north and the Garfield Hills on the south. This is a high-desert environment characterized by arid to semiarid conditions, bright sunshine, low annual precipitation, and wide daily ranges in temperature. The project area is approximately 4,700 feet above mean sea level (AMSL). Vegetation consists of salt desert scrub dominated by Shockley's wolfberry (*Lycium shockleyi*) and Bailey's greasewood (*Sarcobatus baileyi*), two species that are frequently found together in transitional areas.

SUPPLEMENTAL AUTHORITIES

Appendix 1 of BLM's NEPA Handbook H-1790-1 (BLM, 2008b) identifies Supplemental Authorities that are subject to requirements specified by statute or executive order and must be considered in all BLM environmental documents. The table below lists the Supplemental Authorities and their status in the area comprising the Proposed Action. Supplemental Authorities that may be affected by the Proposed Action are further described in this EA.

Supplemental Authorities

Supplemental Authority	Not Present*	Present/Not Affected*	Present/ May Be Affected **	The following rationale was used to determine that Supplemental Authorities present in the area would not be affected as a result of implementation of the Proposed Action.
Air Quality			X	Carried forward in EA
Areas of Critical Environmental Concern	X			
Cultural Resources		X		Carried forward in EA; no eligible sites so no effect
Environmental Justice	X			
Farm Lands (prime or unique)	X			
Fish Habitat***	X			
Floodplains	X			
Invasive, Non-native Species			X	Carried forward in EA
Migratory Birds			X	Carried forward in EA
Native American Religious Concerns		X		The Native American tribes that have cultural affiliation with the area within the proposed project area are the Walker River Paiute Tribe and Yomba Shoshone Tribe. Per 36 CFR Part 800 and 43 CFR Part 8100 (BLM), as amended, a consultation letter with a general summary of the proposed lease renewal program, and map of the proposed project location were sent to the Tribes on July 21, 2008. The results were provided to both Tribes in correspondence sent on October 21, 2008 and a final report was provided to the Walker River Paiute Tribe on July 14, 2009. The Yomba Shoshone Tribe deferred to the Walker River Paiute Tribe. During a face to face meeting with the Walker River Paiute Tribe (October 3, 2008) the cultural resource staff stated that there are no Native American Religious concerns relative to this project proposal, however they requested a copy of the final report upon completion. Although the Tribe did not express concerns for the proposed project, in the event that human remains are inadvertently discovered during construction, activities at that location would cease and the Tribes would be contacted immediately.
Threatened or Endangered Species	X			No listed, threatened, or candidate species are present per USFWS species list (see Appendix D).
Wastes, Hazardous or Solid	X			
Water Quality (Surface/Ground)	X			
Wetlands/Riparian Zones	X			
Wild and Scenic Rivers	X			
Wilderness	X			

**Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*

***Supplemental Authorities determined to be Present/May Be Affected must be carried forward in the document.*
****This fish habitat is related to specific Congressional acts protecting marine and commercial fish habitat. It does not apply to common aquatic habitats and fisheries.*

RESOURCES OR USES OTHER THAN SUPPLEMENTAL AUTHORITIES

The following resources or uses, which are not Supplemental Authorities as defined by BLM's Handbook H-1790-1 (BLM, 2008b), are present in the area. BLM specialists have evaluated the potential impact of the Proposed Action on these resources and documented their findings in the table below. Resources or uses that may be affected by the Proposed Action are further described in this EA.

Other Resources

Resource or Issue	Present/Not Affected*	Present/ May Be Affected **	The following rationale was used to determine that resources present in the area would not be affected as a result of implementation of the Proposed Action or Alternatives.
Land Use		X	Carried forward in EA
Recreation		X	Carried forward in EA
Visual		X	Carried forward in EA
Noise	X		The project area is over 2 miles from the nearest town and residences.
Soils/Geology/ Minerals		X	Carried forward in EA
Livestock Grazing/ Vegetation		X	Carried forward in EA
Wildlife and Fisheries		X	Carried forward in EA
Socioeconomics		X	Carried forward in EA

**Resources or uses determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*
***Resources or uses determined to be Present/May Be Affected must be carried forward in the document.*

RESOURCES PRESENT AND BROUGHT FORWARD FOR ANALYSIS (ALL RESOURCES)

The following resources are present in the area, may be affected by the Proposed Action, and are carried forward for analysis.

Air Quality

The Clean Air Act was passed in 1970 (and amended in 1990) to reduce air pollution across the United States. Specific air pollutants associated with the potential to affect human health were identified as criteria pollutants. Criteria pollutants were assigned acceptable airborne concentration levels, and collectively the list was named the National Ambient Air Quality Standards (NAAQS). The Environmental Protection Agency (EPA) is responsible for revising these standards when necessary. The Clean Air Act also mandates the EPA approve state implementation plans to ensure that local agencies comply with the Act.

The EPA established NAAQS for the following six criteria pollutants: sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. In addition to criteria pollutants, the EPA also controls hazardous air pollutants. Such substances, if present in the surrounding air,

are thought to have serious health impacts. Each state is responsible for developing a state implementation plan (SIP) to demonstrate how those standards will be achieved, maintained, and enforced. Nevada's ambient air quality standards differ from the EPA's and may not be exceeded.

Existing air quality conditions are described in terms of attainment status. Counties are designated as "nonattainment" or "attainment/unclassified" areas depending on their ability to meet criteria pollutant standards for air quality. Ambient pollutant levels are expected to be low in the undeveloped regions and negligible in remote areas. High pollutant levels are typically associated with developed areas or areas characterized by high winds and dust-producing soil types.

Affected Environment

The project is located in the Soda Spring Valley (121A) air basin. The basin is considered "unclassified" by NDEP relative to attainment of applicable state and federal air quality standards. Unclassified basins are those for which there are insufficient ambient air quality data to determine compliance with applicable standards. Unclassified air basins are managed as attainment areas (i.e., areas that do not exceed the national standard of ambient air quality for any criteria pollutant).

Environmental Consequences

Various air emissions could result from the Proposed Action. Ground disturbance for installation of solar collectors and construction of maintenance roads and ancillary facilities would release fugitive dust. Internal combustion engines in vehicles and other equipment would release carbon dioxide, carbon monoxide, nitrogen oxides, saturated hydrocarbons, particulate matter, and photochemical air pollutants such as ozone. Potential air quality impacts would be minimized through compliance with state and federal regulations. Luning Solar would comply with the conditions of the project surface area disturbance permit issued by the NDEP Bureau of Air Pollution Control. Because impacts to air quality are minimal, no mitigation is proposed.

Affected Environment

The project area was inventoried to federal Class III standards by Kautz Environmental Consultants, Inc. (Kautz), in June and July 2008 and April 2009. The cultural resources inventory resulted in the recordation of 19 isolated finds and a total of 11 archaeological sites. No historic properties were identified during the survey therefore this project will have no effect.

Environmental Consequences

BLM has agreed that cultural resources in the project area do not require further management action. Any unanticipated discoveries of cultural resources in the project area would be protected by implementing the environmental protection measures listed in Section II. Therefore, no direct or indirect impacts to cultural resources are anticipated to occur as a result of the Proposed Action and no mitigation is proposed.

Invasive, Nonnative Species

A weed can be defined as a nonnative plant that disrupts, or has the potential to disrupt or alter, the natural ecosystem function, composition, and diversity of the site it occupies. The presence of weeds makes efficient use of natural resources difficult and may interfere with attaining

management objectives for that site. The term *noxious weed* refers to plant species that have been legally designated as unwanted or undesirable at the national, state, or county level. In the State of Nevada, noxious weeds are defined in Nevada Revised Statutes (NRS) 555.005 as "any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate." A list of noxious weeds in the State of Nevada may be found on the Nevada Department of Agriculture's website.

The spread and increase of noxious and other invasive, nonnative weeds contributes to a decrease in the quantity and quality of other renewable resources, including forage quantity and quality. Noxious and other invasive, nonnative weeds complicate native plant community management and can adversely affect listed or sensitive species.

Affected Environment
No noxious weeds were found during a botanical survey of the project area; however, invasive, nonnative species are common (JBR, 2008). Russian thistle (*Salsola tragus*) is found throughout the area, and halogeton (*Halogeton glomeratus*) is common near SR361. Cheatgrass (*Bromus tectorum*) is present in the area but is much less common than either Russian thistle or halogeton.

Environmental Consequences
Land clearing could result in the spread of halogeton and Russian thistle in the area because these species are already common and frequently colonize newly disturbed areas. Any new infestations of nonnative, invasive species in the project area would be treated promptly, as required by the resource protection measures listed in Section II. No other mitigation is proposed.

Migratory Birds
On January 11, 2001, President Bill Clinton signed Executive Order 13186 (Land Bird Strategic Project) placing emphasis on conservation and management of migratory birds. The species are not protected under the Endangered Species Act, but most are protected under the Migratory Bird Treaty Act (MBTA) of 1918. Management for these species is based on Instruction Memorandum 2008-050 dated December 18, 2007. The list of migratory species of concern for the Carson City District is shown in Appendix A (BLM, 2007). The migratory species of concern that could be present in the project area, based on habitat preferences, are discussed below.

Affected Environment
Habitat in the project area consists primarily of salt desert scrub dominated by species such as Bailey's greasewood, shadscale, bud sagebrush, and wolfberry with a high percentage of Russian thistle as well. Migratory bird species of concern that may occur in the Luning Solar project area include the mourning dove (*Zenaida macroura*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), and sage sparrow (*Amphispiza belli*).

Others may occur in the project area as migrants or transients, particularly Swainson's hawks (*Buteo swainsoni*) and Brewer's sparrow (*Spizella breweri*).

Mourning doves are adaptable species that are found in a wide variety of habitats but seem to prefer farm fields (Terres, 1982). In the Great Basin, loggerhead shrikes are typically associated

with greasewood (Grant et al., 1991) and sagebrush communities (McAdoo et al., 1989). Dense stands of trees and shrubs are used for nesting and roosting sites, as well as for hunting perches (Ryser, 1985). Shrikes may forage in the project area although no potential nesting habitat has been identified.

Burrowing owls generally inhabit open areas with low vegetation. These owls utilize underground burrows for nesting and shelter. Nesting areas characteristically include an elevated perch site or sites, such as fence posts, utility poles, or mounds of earth. The burrowing owl is migratory in the Great Basin, though an occasional individual may overwinter (Ryser, 1985). Burrowing owls would not be expected to be found in the project area at the time of the January field visit; the area was searched for potential burrows, but none were found.

Sage sparrows likely pass through the area during migration and may remain to nest in the area. Typically, sage sparrows nest in cold desert habitats in sagebrush, saltbush, or shadscale habitat. Brewer's sparrows are considered a sagebrush obligate species. No sagebrush is present in the project area, but the species may be present in the area during spring and/or fall migration.

Environmental Consequences

Implementation of the Proposed Action could result in the removal of up to 575 acres of salt desert scrub habitat. The disturbance would result in local fragmentation of habitat, but this habitat type is common in the low elevation land surrounding the project area. Some individual birds utilizing the project area could be displaced, but impacts to avian populations beyond the local level (i.e., state-wide or range-wide) would be minimal. Certain species, specifically the loggerhead shrike, could make use of the solar collectors as foraging perches.

While no potential burrowing owl nest sites were identified in the area during a January site visit, this species may nest in the area. The amount of potential nesting area may be locally reduced by the project, but the presence of elevated perches and shade as well as areas of cleared ground under the solar collectors may serve to enhance burrowing owl nesting potential, particularly near the edges of the solar collector arrays.

There would be a long-term loss of up to 575 acres of shrubland nesting habitat for sage sparrows. However, this habitat type is common in the surrounding area, and the impact of construction on nesting sage sparrows is expected to be low.

Potential impacts to migratory birds would be minimized through compliance with state and federal regulations and implementation of appropriate best management practices (BMPs). Where these measures do not provide adequate protection, the BLM would include seasonal or time limited (TL) stipulations or control surface use (CSU) stipulations in the Record of Decision. Time limitations are used to protect resources that are sensitive to disturbance during certain periods, such as the migratory bird nesting period (approximately May 15 to July 15). Such stipulations are generally applicable to specific areas, seasons, and resources and are commonly applied to nesting habitat for migratory birds.

Because impacts to migratory birds are anticipated to be minimal, no mitigation is proposed.

Land Use

Affected Environment

Figure 3 shows existing ROWs in the project vicinity. SR361 passes through the project area in an NDOT ROW (BLM Serial Number NVCC 0021174) that extends 200 feet on both sides of centerline. An east-west electric power transmission line ROW (BLM Serial Number NVN 007255) is approximately 1,500 feet north of the project area. The transmission line ROW turns southeast toward the Table Mountain Substation about 3,500 feet east of SR361. The proposed Luning Solar transmission would cross this ROW in the vicinity of the substation. The transmission line alignment and the eastern portion of the project area also cross a portion of a large lode claim block belonging to Canyon Copper Corporation and development of the solar project cannot interfere with development of these mineral claims. Canyon Copper has indicated that they have no objection to construction of the transmission line across the lode claims (Appendix B).

Environmental Consequences

Luning Solar would obtain an encroachment permit from NDOT prior to beginning any work within the highway ROW. Any potential project conflicts with the electric transmission ROW or lode claims would be resolved by negotiation with the ROW or claim owner (NV Energy and Canyon Copper, respectively). Because no impacts to land use have been identified no mitigation is proposed.

Recreation

Affected Environment

Recreational use of land in the project area appears to be very light. There are no established trails nearby, and there are no landscape features that would tend to attract large numbers of recreational visitors.

Environmental Consequences

Because recreational use of the project area is very light and because a vast amount of similar public land would still be available in the vicinity, the project would have only a minor impact on recreation. There is a possibility that the Las Vegas to Reno off-road race would pass through the vicinity of the project area. If necessary, Luning Solar would coordinate with the BLM to avoid potential conflicts with the race. Because anticipated impacts to recreation are minimal, no mitigation is proposed.

Visual

This section describes visual resources in the project area and the BLM's Visual Resource Management (VRM) System, which is used in the analysis. The section also describes the Key Observation Point (KOP) that was used to describe existing conditions and assess potential impacts of the Proposed Action on visual resources. The visual resources analysis area for the Proposed Action consists of the portion of Soda Springs Valley north of Luning on U.S. Highway 95 (US95) and south of the Gabbs Valley Range.

The BLM's VRM system provides a means to measure the scenic value of an area's visual resources so that the area can be appropriately managed (BLM, 1986a; BLM, 1986b; BLM,

1998a; BLM, 1998b). The VRM system can also be used to analyze potential visual impacts and apply visual design techniques to minimize impacts on the landscape. The VRM system consists of an inventory stage and an analysis stage. The inventory stage involves identifying and inventorying visual resources using BLM's visual resource inventory process. The analysis stage involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from representative or selected key travel routes and/or observation points. A Resource Management Plan establishes how public lands will be used and managed for different purposes. Visual resources are considered in development of a Resource Management Plan, and visual resources are assigned one of four VRM classes. Management objectives of the VRM classes are as follows:

Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective. The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of basic elements.

The VRM system also subdivides landscapes into three distance zones based on relative visibility from travel routes or observation points. The three zones are foreground-middleground, background, and seldom seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations that are within 3 to 5 miles of the observation point. The background zone is generally considered to include areas beyond the foreground-middleground zone but usually less than 15 miles away. The seldom-seen distance zone is defined as the portion of the landscape that is not visible from the observation point or the portion that is visible but more than 15 miles distant.

Affected Environment

The project area is located on the alluvial fan that slopes to the south from the Gabbs Valley Range. Vegetation in the project area consists mostly of scattered low shrubs. The peaks of the

Gabbs Valley Range are approximately 7 miles north of the project area. The lower slopes range from light tan to brown, with darker green pinyon-juniper forest at the higher elevations.

There are no highway rest stops, scenic overlooks, or other attractions in the immediate vicinity of the project area that would create important viewing locations for large numbers of travelers. Although SR361 crosses the project area, traffic is light, averaging only 116 trips daily from 2003 through 2007 (NDOT, 2008). The intersection of SR361 and US95 is located approximately 2 miles south of the project area. From 2003 through 2007, traffic on US95 measured near the intersection with SR361 averaged 2,360 trips daily (NDOT, 2008).

The project area is within the boundaries of the Consolidated Resource Management Plan (CRMP) of the BLM's Carson City Field Office. At present, no VRM classification has been assigned to the project area (BLM, 2001); however, the land is managed as VRM Class IV.

KOPs are points on a travel route or at a use area where the view of the proposed activity would be most revealing. KOPs are used to describe the existing visual environment and make an assessment of potential project impacts. For this project, one KOP was selected at the intersection of SR361 and US95 where the maximum number of people would view the project site. The view to the north (Figure 4) shows the tan and gray-green valley floor with the Gabbs Valley Range rising in the background zone. Little disturbance is visible from the KOP except for the gravel operation in the foreground. From the KOP it is possible to discern the 120-kV transmission line support structures on the north side of the project area and the Table Mountain Substation, but it is doubtful that these features would be noticed by a casual observer. Because impacts to visual resources would be minimal, no mitigation is proposed.

Environmental Consequences

This section provides a general description of proposed facilities that could affect visual resources, describes potential impacts, and determines VRM consistency of the Proposed Action and Alternatives.

The assessment of visual impacts is based on impact criteria and methodology described in the BLM Visual Contrast Rating System (BLM, 1986b). Two issues are addressed in determining impacts: (1) the type and extent of actual physical contrast resulting from the Proposed Action and (2) the level of visibility of a facility, activity, or structure. Impacts are considered high if visual contrasts that result from landscape modifications affect the quality of any scenic resources; scenic resources having rare or unique values; views from, or the visual setting of, designated or planned parks, wilderness areas, natural areas, or other visually sensitive land uses; views from, or the visual setting of, travel routes; and/or views from, or the visual setting of, established, designated, or planned recreational, educational, or scientific facilities, use areas, activities, viewpoints, or vistas. Appendix C contains a Visual Contrast Rating Worksheet that is based on a field examination of the visual settings of the KOP. The form describes the existing conditions of the characteristic landscape seen from the KOP, types of viewers, sensitivity of viewers, and other relevant information.

Even though the facilities are over 2 miles north of the KOP, they would likely be visible from US95 because the buildings and solar panel arrays would tend to contrast with the form, line, and color of the natural vegetation. The project would meet management goals for VRM Class IV

because the contrast with the existing landscape would be weak to moderate. The project area could attract attention from US95, but it is far enough away that it is unlikely to dominate the view of a casual observer.

Soils/Geology/Minerals

Affected Environment
Soils in Mineral County have been mapped by the Natural Resources Conservation Service (USDA, 2006). The following soil map units have been identified within the project area (Figure 5):

Map Unit 1155—Gynelle-Izo Association
This map unit includes 50 percent Gynelle very gravelly loamy sand, 4 to 8 percent slopes, and 35 percent Izo extremely gravelly loamy sand, 4 to 8 percent slopes. The remainder of the unit is made up of contrasting inclusions. The Gynelle and Izo soils formed in mixed alluvium and are found on fan piedmonts and fan skirts between 4,400 and 5,200 feet. Permeability of these soils is rapid, and runoff is very slow. The hazard of water and wind erosion is slight.

Map Unit 1870—Luning-Sundown Association
This map unit is formed of eolean material and mixed alluvium and is found on fan skirts between 4,300 and 5,000 feet. The unit includes 75 percent Luning loamy sand, 2 to 4 percent slopes, and 15 percent Sundown loamy fine sand, 2 to 4 percent slopes. Permeability is rapid, and runoff is very slow. The hazard of water erosion is slight, and the hazard of wind erosion is severe.

Map Unit 1910—Izo, Rarely Flooded–Izo Association
This map unit includes 55 percent Izo very gravelly sand, rarely flooded, 2 to 15 percent slopes and Izo very stony sand, 2 to 8 percent slopes. The remainder of the map unit is made up of contrasting inclusions. Soils in this map unit are formed of mixed alluvium. The map unit is found on alluvial fans between 4,400 and 6,000 feet. Permeability is rapid, and runoff is very slow. The hazard of water erosion is slight, and the hazard of wind erosion is moderate.

Map Unit 2002—Sodaspring-Izo Association
The Sodaspring-Izo association includes 70 percent Sodaspring loamy sand, 2 to 4 percent slopes, and 15 percent Izo very gravelly sand, 2 to 4 percent slopes. This map unit is formed of mixed alluvium and is found on fan skirts between 4,500 and 5,600 feet. Permeability is moderately rapid, and runoff is slow. The hazard of water erosion is slight, and the hazard of wind erosion is severe.

Map Unit 2011—Nuahs Loamy Sand, 0 to 4 Percent Slopes
This map unit is formed of mixed alluvium and is found on fan skirts between 4,400 and 5,400 feet. Permeability is moderate, and runoff is slow. The hazard of water erosion is slight, and the hazard of wind erosion is severe.

Map Unit 3092—Inmo-Nuahs-Luning Association
This association includes 40 percent Inmo sand, overblown, 2 to 8 percent slopes; 30 percent Nuahs gravelly loamy sand, 2 to 8 percent slopes; and 15 percent Luning gravelly loamy sand,

gravelly substratum, 2 to 8 percent slopes. The remainder of the map unit is made up of contrasting inclusions. The map unit is formed of mixed alluvium with a cap of sandy eolian material and is found on fan skirts between 4,400 and 5,000 feet. Permeability is very rapid, and runoff is very slow. The hazard of water erosion is slight, and the hazard of wind erosion is very severe.

Surface geology on the alluvial fan where the project is located is described as windblown sand of Pleistocene and Pliocene age, which is interbedded with sheetflow gravel (Ekren and Byers, 1985).

The BLM's Lands and Mineral Legacy Re-Host 2000 System (LR2000) identifies unpatented lode claims in the eastern portion of the project area and transmission line alignment (see Land Use Section, above). The claims are in the northwest corner of the New York Canyon project claim block held by Canyon Copper Corporation. Canyon Copper is in the process of developing a copper mine that is located mainly south and east of the Luning Solar project.

Environmental Consequences
No adverse effects on soils and geology resources have been identified and no mitigation is proposed. Surface soil will be disturbed in the process of grading and leveling the site for construction of solar collector mountings and associated infrastructure. Potential conflicts with existing lode claims would be avoided by negotiations with the claim holder, as discussed in the Land Use Section.

Livestock Grazing/Vegetation
The BLM manages rangelands on public lands under 43 CFR Part 4100 and BLM Handbooks 4100 to 4180. Under this management, ranchers may obtain a grazing permit for an allotment of public land on which a specified number of livestock may graze. An allotment is an area of land designated and managed for livestock grazing. The number of permitted livestock on a particular allotment on public land is determined by how many animal unit months (AUMs) that land will support. An animal unit month is the quantity of forage required for one mature cow and her calf (or the equivalent in sheep or horses) for one month.

Affected Environment
The project area is located within the Pilot-Table Mountain allotment. This allotment encompasses 512,449 acres of BLM-managed lands and 8,771 acres of private lands. The allotment has an active grazing preference of 7,900 AUMs. The season of use is year round with the year divided into a summer use area (April 1 to October 31) and a winter use area (November 1 to March 31). The Luning Corral is approximately one mile south of the project area in the SE¼NW¼ of Section 27, Township 8 North, Range 34 East. This corral is an integral tool used by the permittees to move their cows from one side of Highway 361 to the other.

Vegetation in the project area is dominated by Shockley's wolfberry (*Lycium shockleyi*) and Bailey's greasewood (*Sarcobatus baileyi*) (JBR 2008). Shockley's wolfberry is usually found in gravelly, better-drained areas such as alluvial fans while Bailey's greasewood is abundant at the upper end of salt desert environments in the Great Basin. Two cactus species were observed in the project area: three occurrences of plains pricklypear (*Opuntia polyacantha*) and six

occurrences of sand cholla (*Grusonia pulchella*). No noxious weeds, State- or federally-listed plants, or BLM sensitive plants are known to be present.

Environmental Consequences
The Luning Solar generation facility would be fenced, excluding grazing from as much as 575 acres (0.1 percent) of the 521,220-acre allotment. The BLM's forage inventory of the project area indicates that 50 acres will provide forage for one AUM. The fencing of 575 acres would remove approximately 11.5 AUMs (0.14 percent of the permitted use) from the total AUMs available in the allotment. With implementation of the resource protection measures in Section II, the Proposed Action would have only a minimal effect on livestock grazing and vegetation resources and no mitigation is proposed.

Wildlife and Fisheries
Correspondence with the Nevada Natural Heritage Program identified no records of at risk taxa in the project area (see Appendix D).

Affected Environment
(a) General Wildlife. There are no lakes, ponds, or permanent streams in the project area that could support fisheries. Wildlife habitat in the project area is salt desert scrub dominated by Bailey's greasewood, shadscale, bud sagebrush, and wolfberry. Russian thistle is also present, particularly in the portion of the project area east of SR361. Wildlife species typically associated with this habitat type include horned larks (*Eremophila alpestris*), western meadowlarks (*Sturnella neglecta*), sage sparrows, black-throated sparrows (*Amphispiza bilineata*), kit foxes (*Vulpes macrotis*), coyotes (*Canis latrans*), and various small rodents and reptiles.

(b) Game Animals. The habitat in the project area is generally not suitable for game animals, as confirmed by Nevada Department of Wildlife (NDOW) online maps of game animal distribution. However, the project area is just south of mapped pronghorn antelope (*Antelocapra americana*) range, and it is possible that pronghorn occasionally use the project area.

(c) BLM Manual 6840 – Special Status Species Management, establishes policy for management of Bureau sensitive species which are found on BLM-administered lands (BLM 2008a). Species designated as Bureau sensitive must be native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or

2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

Based on habitat preferences, several species considered sensitive by the BLM (Appendix E) could be present in the project area. BLM sensitive species that may occur in the project area include the golden eagle, prairie falcon, burrowing owl, and loggerhead shrike. Swainson's hawks may occur in the area at least during migration. Several BLM sensitive bat species may forage in the project area, but no roosting habitat is present. NDOW online maps show that the project area does not overlap greater sage-grouse habitat.

Both the golden eagle and the prairie falcon typically nest on cliffs or outcrops. Golden eagles forage in a variety of habitats, while the prairie falcon usually forages in open country. No cliffs or outcrops are present in the project area, but golden eagles and prairie falcons may forage in the project area.

Swainson's hawks are long-distance migrants that are present in the Great Basin only during the warmer times of the year. They typically inhabit open country including agricultural lands. Swainson's hawks usually nest in trees or other elevated sites. No such features occur in the project area, but Swainson's hawks may pass through the area during migration and may forage in the area at other times. The burrowing owl and the loggerhead shrike are discussed in the Migratory Birds Section.

Environmental Consequences

(a) General Wildlife. Implementation of the Proposed Action is expected to result in the removal of as much as 575 acres of desert salt scrub habitat composed of Bailey's greasewood, shadscale, bud sagebrush, and wolfberry. Removal of this habitat could force some individuals into adjacent undisturbed habitat, potentially resulting in a local increase in competition for limited resources. This impact would be greater for smaller species with limited home ranges and less important for larger and wider-ranging species such as kit foxes or coyotes. While individual animals could be affected, there is a vast amount of similar habitat available in the valley and it is unlikely that there would be a measurable impact on any of these species.

Construction of the solar collector arrays and associated infrastructure and structures would change the natural environment by adding reflective surfaces, fences, buildings, and transmission line support structures. These new features could alter the way that wildlife will use the site and surrounding area. While some species could be attracted to the altered habitat (e.g., by the availability of new perching sites, or by being attracted to reflective surfaces), others will likely be deterred by the presence of humans. These impacts are anticipated to be minimal.

(b) Game Animals. The project area is located south of NDOW's mapped antelope range. While some antelope use of the area may occur, no well-established trails or wildlife travel corridors were noted within the project area and there are no water sources that might attract antelope. The proposed facilities would be fenced, removing up to 575 acres of habitat that could be used by antelope. Antelope would be excluded from the fenced area, but general antelope movement in the vicinity would not be affected. Because the habitat is of limited value, the overall impact on antelope or other game species would be negligible.

(c) BLM Sensitive Species. Implementation of the Proposed Action would remove up to 575 acres of salt desert scrub wildlife habitat; however, this habitat type is common in the valley surrounding the project area. The loss of this habitat type would be expected to have a negligible

impact on the foraging success of golden eagles, prairie falcons, or Swainson's hawks. Potential effects of the Proposed Action on burrowing owls and loggerhead shrikes are discussed in the Migratory Birds Section.

Because impacts to wildlife and fisheries would be minimal, no mitigation is proposed.

Socioeconomics

Affected Environment

Mineral County is a small (3,756 square miles), predominantly rural county in west-central Nevada adjacent to the California-Nevada state line. Mineral County is named for its abundant and unique mineral resources that include gold, silver, copper, tungsten, iron, coal, borax, lead, and gemstones. In addition to mining, tourism is also an important part of the economy because outdoor enthusiasts are drawn to the vast expanses of public land available for hiking and riding motorcycles and off-highway vehicles cross-country. The table below summarizes Mineral County's social and economic indicators.

Social and Economic Indicators

	Mineral County	State of Nevada
Population (July 1, 2007) [1]	4,377	2,718,000
Private non-farm employment (2005) [2]	1,263	1,089,422
Ethnicity (2006) [2]		
White persons	75.2%	81.7%
Black persons	4.7%	7.9%
American Indian/Alaska Native	16.6%	1.4%
Asian	1.0%	6.0%
Hispanic/Latino	10.1%	24.4%
Households (2000) [2]	2,197	751,165
Housing Units (2006) [2]	2,868	1,065,197
Median Household Income (2004) [2]	$33,302	$47,231
Persons Below Poverty Level (2004) [2]	14.8%	11.1%

Notes: 1. Nevada State Demographer's Office
2. U.S. Census Bureau, State and County QuickFacts

Hawthorne, which is located approximately 23 miles west of the project area, is the county seat and the county's largest town, with a population of approximately 2,960 in 2007 (NSDO, 2008). Hawthorne is the site of the Hawthorne Army Depot, which receives, stores, and disposes of conventional ammunition and provides high desert training facilities for military units. The Depot covers 147,000 acres and has 600,000 square feet of floor space in 2,427 storage bunkers. The Depot is only partially staffed during peacetime, but staffing can be rapidly expanded as necessary. The Depot is currently being run by a contractor, which has approximately 500 employees. The Depot contractor is the largest employer in Mineral County, providing about 40 percent of the county's jobs.

Luning is a small town of approximately 79 residents, which is about 2 miles south of the project area near the junction of US95 and SR361.

The current economic environment is extremely difficult and the global economy is in a severe recession. The collapse of the housing market in the United States has been marked by steeply falling home prices, foreclosures, and a virtual halt to new construction. The real estate market in Nevada has been affected even more than the national average. As a result of these problems, economic activity and employment in Nevada are contracting and there is no turnaround in economic conditions in sight. As state, county, and city revenues continue to fall, cuts in government services and employment inevitable.

Environmental Consequences

It is anticipated that construction of all three project phases combined would employ eight workers for a total of 20 months. Operations and maintenance full-time employees would increase from two or three for the initial phase to a maximum of five to seven at completion of the final phase. The number of employees depends to some degree on the solar technology installed. It is likely that most employees (except for the on-site caretaker) would reside in Hawthorne, which is only a 30-minute drive from the site.

Project spending on labor, materials, and equipment rental would benefit Mineral County and Hawthorne by increasing tax revenues. This additional income could help offset the loss of revenue if, as expected, the current difficult economic environment continues into the future. On the other hand, the addition of eight temporary workers and up to seven permanent employees to the local workforce is unlikely to make a measurable difference in the demand for housing and government services such as fire and police protection, schools, road maintenance, water, and trash collection. There should be adequate short-term housing for construction workers in Hawthorne. Overall, the project would provide a local economic benefit by creating long-term jobs and help diversify the county's employment opportunities in a new industry. Because the project impacts to social and economic factors would be minimal or positive, no mitigation is proposed.

NO ACTION ALTERNATIVE

Under the No Action alternative the solar energy project would not be developed and there would be no impacts to resources other than those already authorized. The No Action alternative would be inconsistent with the Federal Energy Policy, which promotes development of environmentally attractive energy resources. The State of Nevada and Mineral County would not receive the additional revenue that the solar project could provide.

CUMULATIVE IMPACTS

The analysis presented in this section addresses potential cumulative impacts associated with the Proposed Action and No Action alternatives, as required by Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508). CEQ regulations state that the cumulative impact analysis should include the anticipated impacts to the environment resulting from "the incremental impact of [an] action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time" (40 CFR 1508.7).

The analysis in this section builds upon analyses of direct and indirect impacts of the Proposed Action and No Action alternatives presented above. The region of influence for each resource is evaluated in the cumulative impacts analysis area, which is defined as Soda Spring Valley between US95 on the south and the Gabbs Valley Range on the north. The reasonably foreseeable time frame for analysis is 20 years. While it is likely that effects identified in the cumulative impacts analysis would continue beyond the 20-year horizon, it is difficult to project future actions or trends beyond this time.

Proposed Action

Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and reasonably foreseeable future activities on private and federal land have been and are likely to continue to be exploration and extraction of minerals, livestock grazing, recreation, utility transmission and distribution systems, and transportation. Other past, present, and reasonably foreseeable activities in the project area include realty actions, noxious weed treatment, fire suppression, and burned area rehabilitation.

The only known large-scale project in the cumulative effects analysis area is the proposed development of Canyon Copper Corporation's New York Canyon copper and molybdenum mine. The greatest portion of the project is located in the Gabbs Valley Range east of Soda Spring Valley, but the lode claim block also encompasses approximately 3,700 acres of the valley east of SR361. The extent to which the load claim block will be developed and the schedule is unknown. However, if the claim block were fully developed the mine project could have a substantial impact on resources such as air quality, grazing, economic activity and housing, traffic, and wildlife habitat.

Cumulative Impacts of the Proposed Action

The Luning Solar project area is located on public land in a low-use rural setting far away from population centers. The contribution of the Proposed Action to cumulative impacts on resources would be relatively minor, consisting mainly of the loss of wildlife habitat and rangeland.

No Action Alternative

Under the No Action alternative, the BLM would not approve the ROW grant. Current agency management practices would continue for existing authorizations in the cumulative effects analysis area.

MONITORING

The monitoring described in the Proposed Action is sufficient for this action.

IV. CONSULTATION AND COORDINATION

CONSULTATION WITH OTHERS

The following agencies and organizations were consulted during preparation of this EA:

Mineral County Board of Commissioners
May 6, 2009. Presentation to Board by Luning Solar, opportunity for public comment.
June 3, 2009. Approval of Luning Solar SUP, opportunity for public comment.
Walker River Paiute Tribe (tribe contacted by BLM)
Yomba Shoshone Tribe (tribe contacted by BLM)
U.S. Fish and Wildlife Service (project species list)
Nevada Natural Heritage Program (list of database occurrences in project vicinity)

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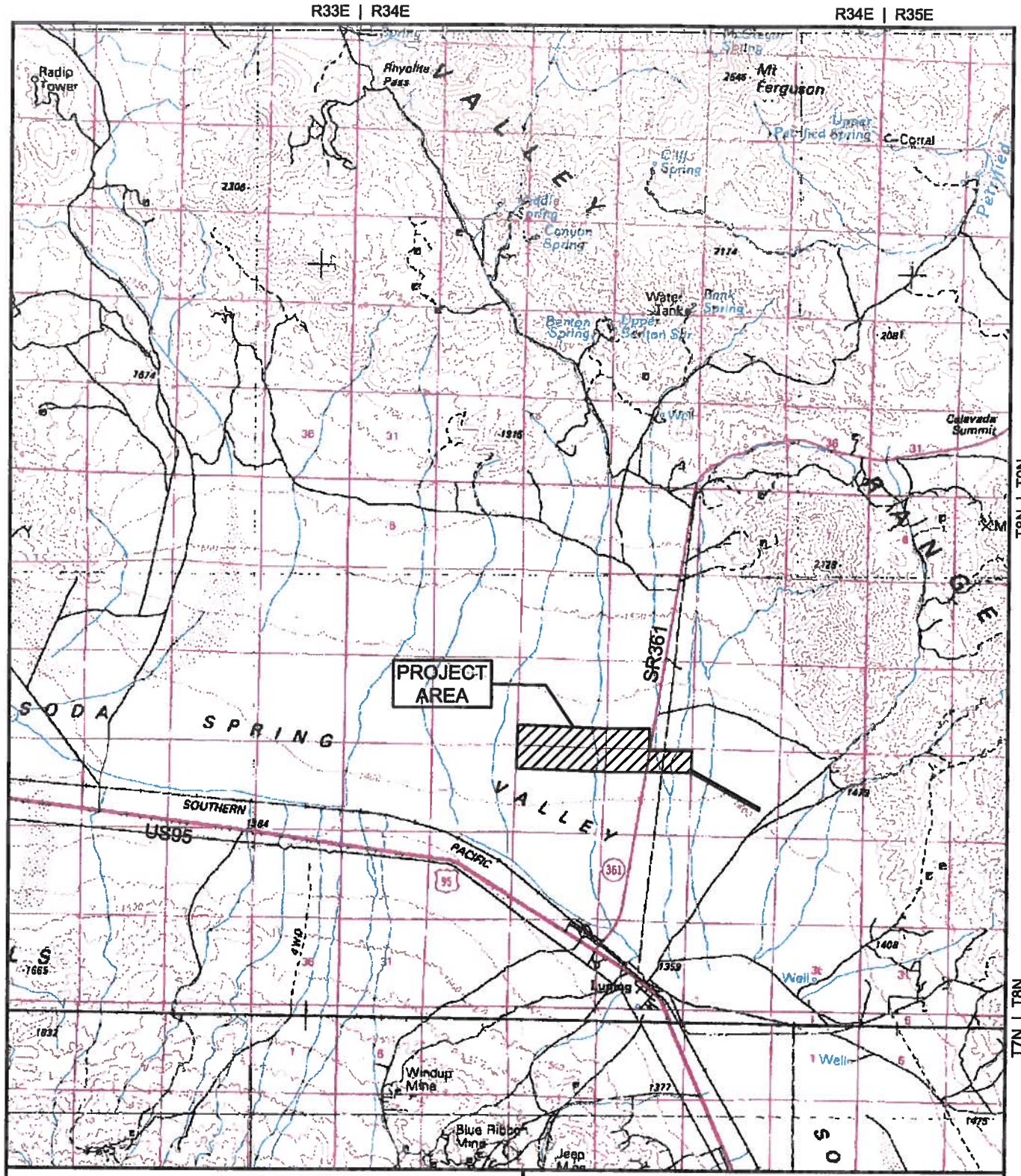
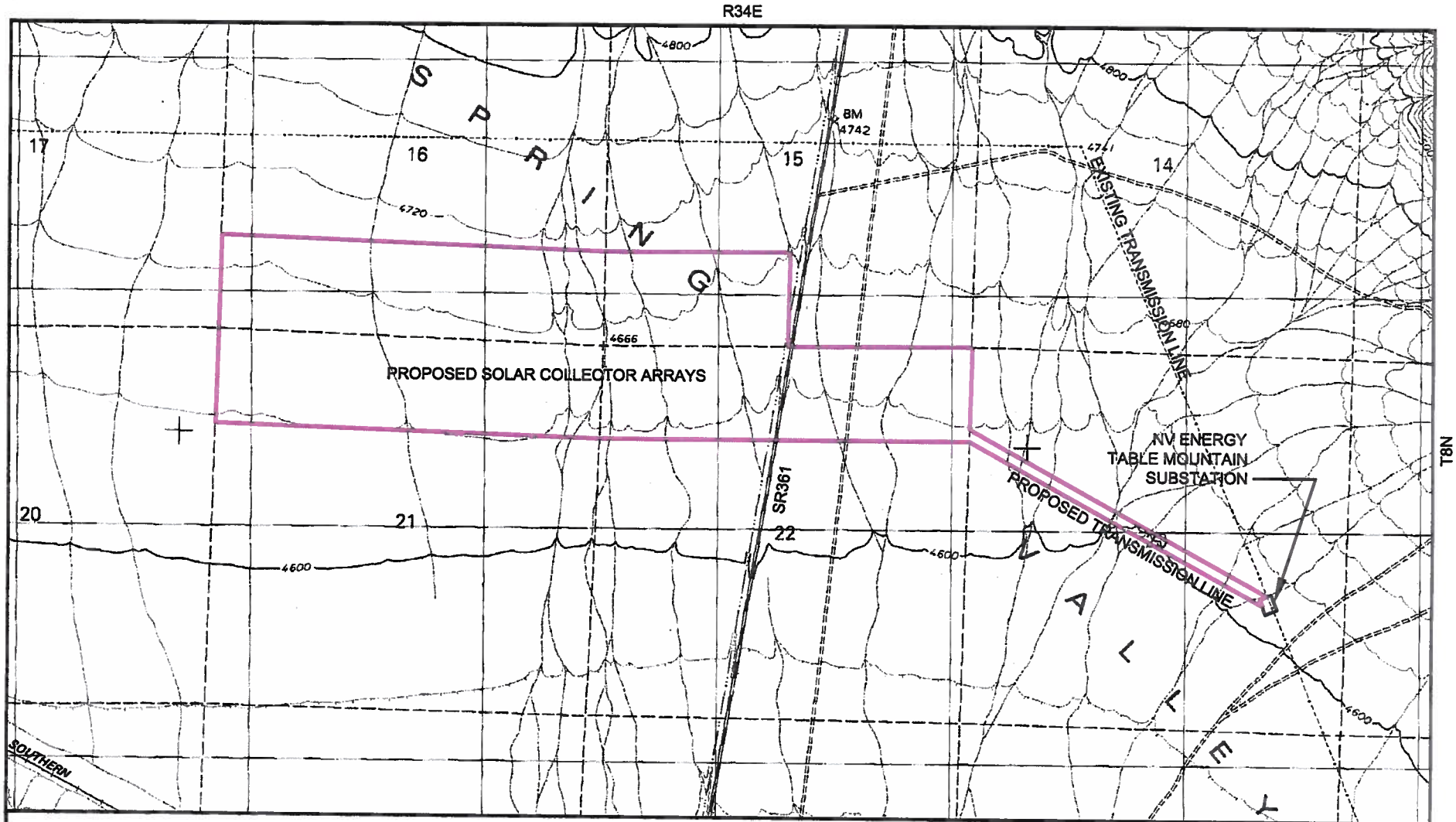
FIGURES


R33E | R34E
R34E | R35E
T8N | T9N
T7N | T8N
PROJECT AREA
SR361
SODA SPRING VALLEY
SOUTHERN PACIFIC
US95
Radio Tower
Rhyolite Pass
Mt Ferguson
Upper Petrified Spring
Coral
Petrified
Cliff Spring
Middle Spring
Canyon Spring
Water Tanks
Bank Spring
Benton Spring
Upper Benton Spr
Calavada Summit
Windup Mine
Blue Ribbon Mine
Jeep Mine
Luning
Well
BASE IMAGE: USGS DRGs
0 1.0 2.0 MILES
LUNING SOLAR ENERGY, LLC
ENVIRONMENTAL ASSESSMENT
FIGURE 1
VICINITY MAP
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
BLM Carson City Field Office
DATE DRAWN: 04-02-09



LUNING SOLAR ENERGY, LLC
ENVIRONMENTAL ASSESSMENT

FIGURE 2
TOPOGRAPHIC MAP

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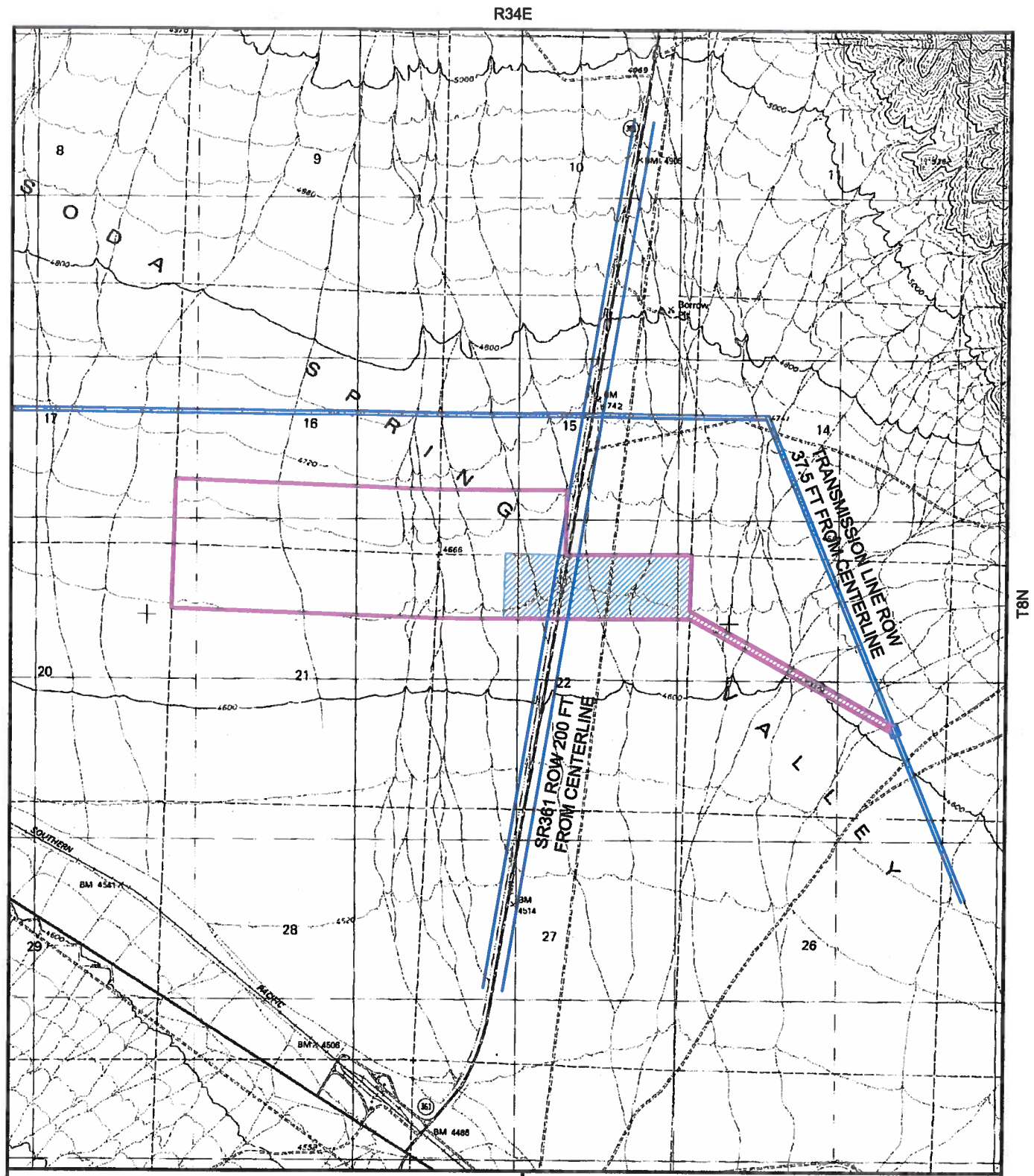


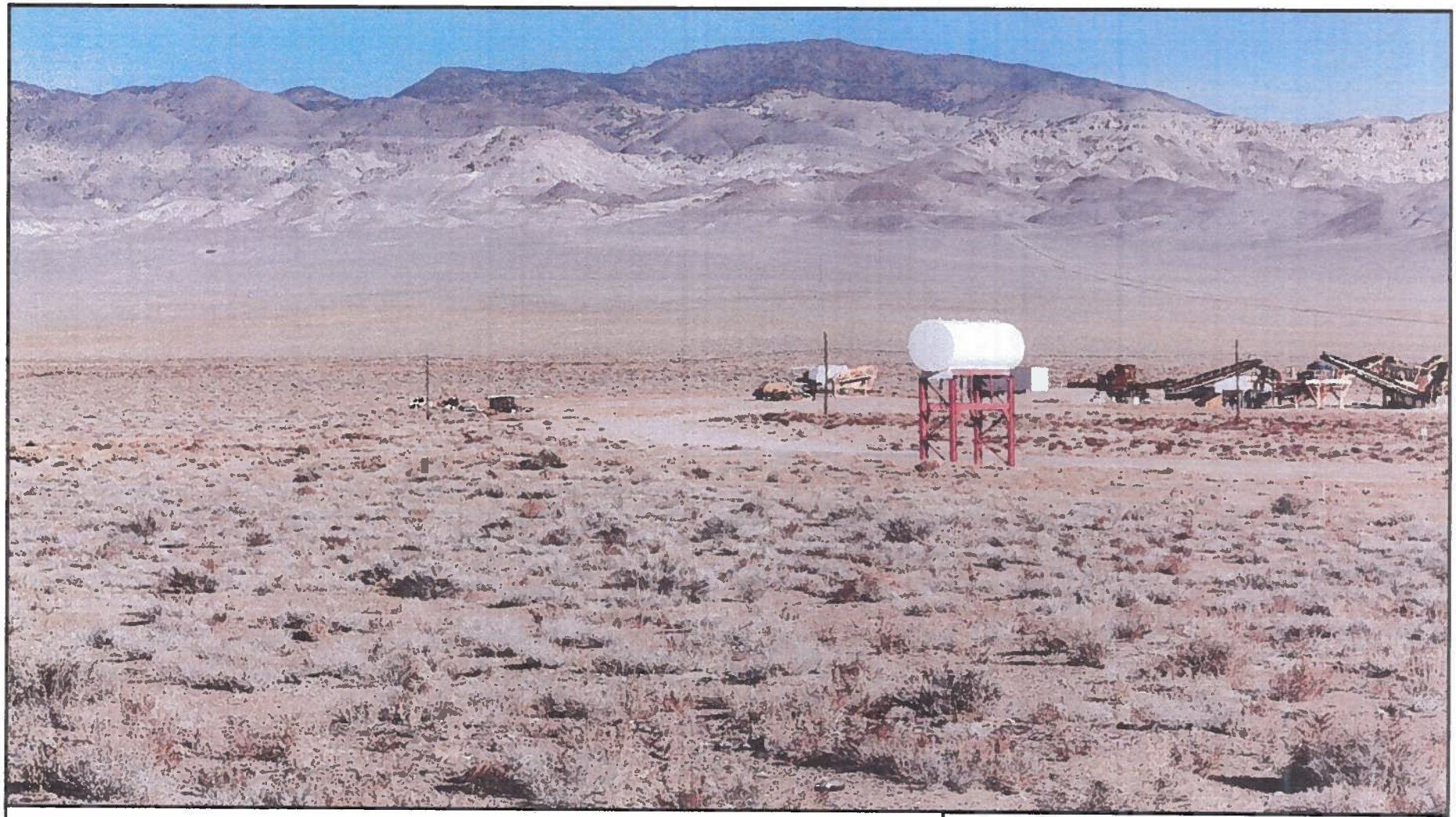
LUNING SOLAR ENERGY, LLC

ENVIRONMENTAL ASSESSMENT

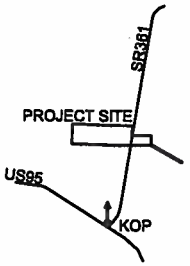
FIGURE 3
LAND USE

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

BLM Carson City Field Office | DATE DRAWN: 04-02-09



VIEW FROM KEY OBSERVATION POINT (KOP) TO THE NORTH SHOWING THE VALLEY FLOOR AND GABBS VALLEY RANGE IN THE BACKGROUND. KOP IS LOCATED AT THE INTERSECTION OF US95 AND SR361, APPROXIMATELY 2 MILES SOUTH OF THE PROJECT SITE. SR361 IS VISIBLE IN THE UPPER RIGHT PORTION OF THE PHOTOGRAPH.



LUNING SOLAR ENERGY, LLC

ENVIRONMENTAL ASSESSMENT

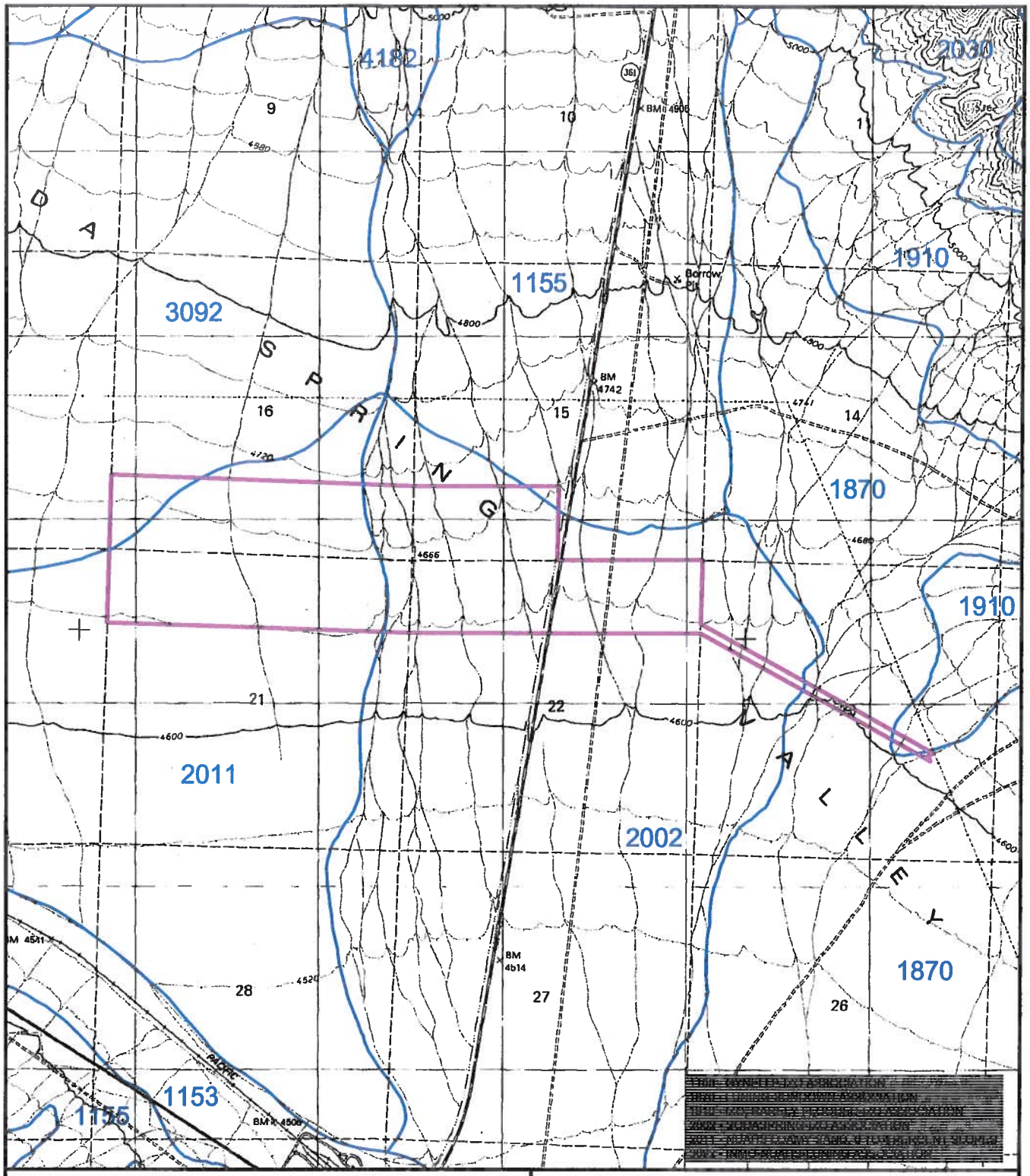
FIGURE 4
VIEW FROM KEY OBSERVATION POINT

BLM Carson City Field Office

DATE DRAWN: 04-02-09

R34E

T8N



BASE IMAGE: USGS DRGs
PROJECT BOUNDARY
SOIL BOUNDARIES FROM SOIL SURVEY GEOGRAPHIC (SSURGO) DATABASE FOR MINERAL COUNTY AREA, NEVADA, USDA, NRCS, JULY 18, 2006.

2,500 1,250 0 2,500 FEET

LUNING SOLAR ENERGY, LLC
ENVIRONMENTAL ASSESSMENT

FIGURE 5
SOILS MAP

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

BLM Carson City Field Office | DATE DRAWN: 04-02-09

APPENDIX A

Migratory Bird Species of Concern

BIRDS OF CONCERN
on Carson City District Office, BLM, per IM 2008-050 List

Game Birds of Conservation Concern

Canvasback	*Aythya valisineria*
Dove, Mourning	*Zenaida macroura*
Duck, Ring-necked	*Aythya collaris*
Duck, Wood	*Aix sponsa*
Mallard	*Anas platyrhynchos*
Pigeon, Band-tailed	*Columba fasciata*
Pintail, Northern	*Anas acuta*

Bird Species of Conservation Concern

Avocet, American
Blackbird, Tricolored
Bittern, American
Cuckoo, Yellow-billed
Curlew, Long-billed
Eagle, Golden
Falcon, Peregrine
Falcon, Prairie
Flycatcher, Olive-sided
Goshawk, Northern
Harrier, Northern
Hawk, Ferruginous
Hawk, Swainson's
Hummingbird, Costa's
Hummingbird, Rufous (Alpine Co. only)
Jay, Pinyon
Nuthatch, Pygmy
Owl, Burrowing
Owl, Flammulated
Owl, Short-eared
Owl, Spotted
Phalarope, Wilson's
Plover, Snowy
Sage Grouse, Greater, Columbia Basin pop.
Sapsucker, Red-naped
Sapsucker, Williamson's
Shrike, Loggerhead
Sparrow, Brewer's
Sparrow, Sage
Swift, Black (Alpine Co. only)
Vireo, Gray
Warbler, Black-throated Gray (east part of CCFO only)
Warbler, Virginia's
Willet
Woodpecker, Lewis's
Woodpecker, White-headed

APPENDIX B

Canyon Copper Correspondence

CANYON COPPER

OTCBB: CYOO

21st April 2009

Luning Solar Energy
6155 Plumas Street #185
Reno, NV 89519, USA.

Attention: Mr. Edward A. Benson

Dear Mr. Benson,

RE: RIGHT OF WAY FOR POWER LINE TO CONNECT WITH THE EXISTING TABLE MOUNTAIN SUBSTATION OF NV ENERGY.

I have received approval from my principals to make no objection to the easement of access for a power line to connect to the Table Mountain substation of NV Energy that is located on BLM administered mineral claims provided that Canyon Copper Corp. ("CYOO") or its heirs and successors has the right, at the expense of CYOO, to move the power line should operational conditions require that to be done.

I appreciate your contacting CYOO in this matter and wish you success in your projects. I will forward a copy of this letter to the BLM office in Carson City so they will have a paper trail on the matter.

Yours truly,

Ben Ainsworth, President,
Canyon Copper Corp.

cc Bureau of Land Management, Carson City, NV
Richard Harris, Reno, NV

Suite 408 – 1199 West Pender Street • Vancouver, B.C. • V6E 2R1
TEL (604) 331-9326 • FAX (604) 684-9365

CANYON COPPER

OTCBB: CYOO

27th April 2009

Mr Charles Kihm
Bureau of Land Management
5665 Morgan Hill Road,
Carson City, NV 89701, USA.

Dear Mr. Kihm

Re: Right of way for power line to connect with the existing Table Mountain substation of NV Energy.

I am attaching, for your records, a copy of the letter sent to Mr. Edward Benson of Luning Solar Energy regarding the potential easement of access for a power line to connect to the Table Mountain substation of NV Energy that is located on BLM administered mineral claims held by Canyon Copper Corp (CYOO). Provided that CYOO or its heirs and successors has the right, at the expense of CYOO, to move the power line should operational conditions require that to be done, CYOO has no objection to this easement for power line access.

I understand also that Luning Solar Energy will keep its solar panel arrays outside the areas of the claims since there is some question whether the close proximity of the panels to a heavy truck based operation would be desirable and there is space, potentially, on the west side of highway 361 adjacent to the claims.

Yours truly,

Ben Ainsworth, President,
Canyon Copper Corp.

cc Mr. Edward Benson, Reno, Nevada
Mr. Richard Harris, Reno, Nevada.

Suite 408 – 1199 West Pender Street • Vancouver, B.C. • V6E 2R1
TEL (604) 331-9326 • FAX (604) 684-9365

APPENDIX C

Visual Contrast Rating Worksheet

Visual Contrast Rating Worksheet

Section A. Project Information

Project Name	Luning Solar Project—Proposed Action	**KOP Location**
Key Observation Point	KOP 1, View to N	UTM Zone 11, NAD83
VRM Class	Unclassified, managed as Class IV	E 0396243 N 4263272
		Junction of US95 and SR361

Section B. Characteristic Landscape Description

	Land/Water	Vegetation	Structures
Form	Flat to rolling terrain	Indistinct, irregular	Geometric (gravel operation in foreground)
Line	Horizontal	Complex	Various angles
Color	Gray, tan	Gray-green, dark green, tan	White, red, yellow
Texture	Coarse, rough	Smooth, gradational	Smooth

Section C. Proposed Activity Description

	Land/Water	Vegetation	Structures
Form	Flat to rolling terrain	Indistinct, regular	Geometric (solar arrays, buildings)
Line	Horizontal	Complex	Vertical, horizontal
Color	Gray, tan	Gray-green, dark green	Dark colors
Texture	Coarse, rough	Patchy, gradational	Smooth

Section D. Contrast Rating

	Land/Water	Vegetation	Structures
Form	3	3	3
Line	3	3	3
Color	3	2	2
Texture	3	2	3

Notes: Degree of Contrast: 1 = Strong; 2 = Moderate; 3 = Weak; 4 = None

Does project design meet visual resource management objectives? Yes.
The proposed buildings and solar arrays would create additional areas of contrast with the surrounding undisturbed landform and vegetation. The proposed transmission line to the existing substation would be indistinct and difficult to see. The overall contrast would be weak to moderate because the disturbance is over 2 miles away from an observer at the KOP.

Additional mitigating measures recommended. None.

Evaluator: R. Duncan, JBR Environmental Consultants
Date: January 2009

APPENDIX D

Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Nevada Fish and Wildlife Office
1340 Financial Blvd., Suite 234
Reno, Nevada 89502
Ph: (775) 861-6300 ~ Fax: (775) 861-6301

February 3, 2009
File No. 2009-SL-0110

RECEIVED
APR 10 2009
JBR ENVIRONMENTAL

Mr. David Worley
JBR Environmental Consulting, Inc.
5355 Kietzke Lane, Suite 100
Reno, Nevada 89511

Dear Mr. Worley:

Subject: Species List Request for Luning Solar Project, Mineral County, Nevada

This responds to your letter received on January 12, 2009, requesting a species list for the Luning Solar Project in Mineral County, Nevada. To the best of our knowledge, no listed, proposed, or candidate species occur in the subject project area. This response fulfills the requirements of the Fish and Wildlife Service (Service) to provide a list of species pursuant to section 7(c) of the Endangered Species Act of 1973 (Act), as amended, for projects that are authorized, funded, or carried out by a Federal agency.

The Nevada Fish and Wildlife Office no longer provides species of concern lists. Most of these species for which we have concern are also on the sensitive species list for Nevada maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we are adopting Heritage's sensitive species list and partnering with them to provide distribution data and information on the conservation needs for sensitive species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. Consideration of these sensitive species and exploring management alternatives early in the planning process can provide long-term conservation benefits and avoid future conflicts.

For a list of sensitive species by county, visit Heritage's website at www.heritage.nv.gov. For a specific list of sensitive species that may occur in the project area, you can obtain a data request form from the website or by contacting Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your

request is being obtained as part of your coordination with the Service under the Act. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address. Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (see http://www.leg.state.nv.us/NAC/NAC-503.html). Before a person can hunt, take, or possess any parts of wildlife species classified as protected, they must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (visit http://www.ndow.org or call 775-688-1500).

Because wetlands, springs, or streams may occur in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (Corps) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the Corps' Regulatory Section, 300 Booth Street, Room 2103, Reno, Nevada 89509, (775) 784-5304, regarding the possible need for a permit.

Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918 (MBTA), as amended (16 U.S.C. 703 *et seq.*), we are concerned about potential impacts the proposed project may have on migratory birds in the area. Given these concerns, we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Please reference File No. 2009-SL-0110 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact me or James Harter at (775) 861-6300.

Sincerely,

for Robert D. Williams
Field Supervisor

APPENDIX E

BLM Sensitive Species

ALLEN BIAGGI
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

JIM GIBBONS
Governor

Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, suite 5002
Carson City, Nevada 89701-5245
U.S.A.

tel: (775) 684-2900
fax: (775) 684-2909

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Nevada Natural Heritage Program

http://heritage.nv.gov

09 July 2008

Richard Duncan
JBR Environmental Consultants, Inc.
5355 Kietzke Lane, Suite 100
Reno, NV 89511

RE: Data request received 09 July 2008

Dear Mr. Duncan:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or At Risk plant and animal taxa recorded within or near the Luning Solar Energy Project area. We searched our database and maps for the following, a five kilometer radius including:

Township 08N Range 34E Sections 13-17, 20-24 and 25-29

There are no at risk taxa recorded within the given area. However, habitat may be available for, the Beatley buckwheat, *Eriogonum beatleyae*, a Taxon determined to be Imperiled by the Nevada Natural Heritage Program (NNHP), and the Watson spinecup, *Oxytheca watsonii*, a Taxon determined to be Vulnerable by the NNHP. We do not have complete data on various raptors that may also occur in the area; for more information contact Ralph Phenix, Nevada Department of Wildlife at (775) 688-1565. Note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist /Data Manager

NEVADA BLM SENSTIVE SPECIES
Associated with Carson City BLM

	A	B	C	D	E
1	**COMMON NAME**	***SCIENTIFIC NAME***	**State**	**County**	
2					
3	Sierra alligator lizard	*Elgaria coerulea palmeri*	NV	CC,Do,Hu,Wa	
4	Northern leopard frog	*Rana pipiens*	NV		
5					
6	Golden eagle	*Aquila chrysaetos*	NV	all	
7	Ferruginous hawk	*Buteo regalis*	NV		
8	Northern goshawk	*Accipiter gentilis*	NV		
9	Peregrine falcon	*Falco peregrinus*	NV		
10	Prairie falcon	*Falco mexicanus*	NV		
11	Swainson hawk	*Buteo swainsoni*	NV		
12	Burowing owl	*Athene cunicularia*	NV		
13	Short-eared owl	*Asio flammeus*	NV	Do	
14	Long-eared owl	*Asio otus*	NV		
15	Flammulated owl	*Otus flammeolus*	NV		
16	Lewis woodpecker	*Melanerpes lewis*	NV		
17	Red-napped sapsucker	*Sphyrapicus nuchalis*	NV		
18	Juniper titmouse	*Baeolophus griseus*	NV		
19	Pinyon jay	*Gymnorhinus cyanocephalus*	NV		
20	Loggerhead shrike	*Lanius ludovicianus*	NV		
21	Vesper Sparrow	*Pooecetes gamineus*	NV		
22	Gray Vireo	*Vireo vicinior*	NV		
23	Black rosy finch	*Leucosticte atrata*	NV		
24	Mountain quail	*Oreortyx pictus*	NV		
25	Greater sage grouse	*Centrocercus urophasianus*	NV		
26	Tricolored blackbird	*Agelaius tricolor*	NV	Do,Wa	
27	Sandhill Crane	*Grus canadensis*	NV	migrant	
28	Snowy plover	*Charadrius alexandrinus*	NV		
29	Black tern	*Chlidonias niger*	NV		
30	Long-billed curlew	*Numenius americanus*	NV	Ch	
31	Least bittern	*Ixobrychus exilis*	NV		
32					
33	Western pipistrelle bat	*Pipistrellus hesperus*	NV		
34	Pallid bat	*Antrozous pallidus*	NV		
35	Spotted bat	*Euderma maculatum*	NV		
36	Silver-haired bat	*Lasionycteris noctivagans*	NV		
37	Townsend's big-eared bat	*Corynorhinus townsendii*	NV		
38	Big brown bat	*Eptesicus fuscus*	NV		
39	Hoary bat	*Lasiurus cinereus*	NV		
40	Brazillian free-tailed bat	*Tadarida braziliensis*	NV		
41	Long-eared myotis	*Myotis evotis*	NV		
42	Fringed myotis	*Myotis thysanodes*	NV		
43	California myotis	*Myotis californicus*	NV		
44	Small-footed myotis	*Myotis ciliolabrum*	NV		
45	Little brown myotis	*Myotis lucifugus*	NV		
46	Long-legged myotis	*Myotis volans*	NV		
47	California wolverine	*Gulo gulo*	NV		
48	River otter	*Lontra canadensis*	NV		
49	Desert bighorn sheep	*Ovis canadensis nelsoni*	NV		
50	Western white-tail jackrabbit	*Lepus townsendii*	NV		
51	Pygmy rabbit	*Brachylagus idahoensis*	NV		
52					
53	Wong springsnail	*Pyrgulopsis wongi*	NV	Do,Es,Mi	
54	California floater	*Anodonta californiensis*	NV	Ch,Wa	

NEVADA BLM SENSTIVE SPECIES
Associated with Carson City BLM

	A	B	C	D	E
55	Hardys aegialian scarab	*Aegialia hardyi*	NV	Ch	
56	Sand Mtn aphodius scarab	*Aphodius sp*	NV	unk	
57	San Mtn serican scarab	*Serica psammobunus*	NV	Ch	
58	Carson valley silverspot	*Speyeria nokomis carsonensis*	NV	CC,Do,Wa	
59	Mono valley checkerspot	*Euphydryas editha monoensis*	NV	CC,Do,Ly,Wa	
60	Pallid wood nymph	*Cercyonis oetus pallescens*	NV		
61	Carson valley wood nymph	*Cercyonis pegala carsonensis*	NV		
62	Sand Mtn blue	*Euphilotes pallescens arenamontana*	NV	Ch	
63	Great Basin small blue	*Philotiella speciosa septentrionalis*	NV		
64					
65	Bodie Hills rockcress	*Arabis bodiensis*	NV	Mi	
66	Eastwood milkvetch	*Asclepias eastwoodiana*	NV	Es	
67	Lavin eggvetch	*Astragalus oophorus var. lavinii*	NV	Do,Ly,Mi	
68	Bodie hills draba	*Cusickiella quadricostata*	NV	Do,Ly,Mi	
69	Windloving buckwheat	*Eriogonum anemophilum*	NV	Ch,Wa	
70	Altered andesite buckwheat	*Eriogonum robustum*	NV	St,Wa	
71	Sierra valley ivesia	*Ivesia aperta var aperta*	NV	St,Wa	
72	PNM ivesia; mousetails	*Ivesia pityocharis*	NV	Do	
73	Oryctes	*Oryctes nevadensis*	NV	all	
74	Nevada dune beardtongue	*Penstemon arenarius*	NV	Ch,Mi	
75	Lahontan beardtongue	*Penstemon palmeri var macranthus*	NV	Ch,La	
76	Playa phacelia	*Phacelia inundata*	NV	Wa	
77	Mono phacelia	*Phacelia monoensis*	NV	Es,Ly,Mi	
78	Washoe pine	*Pinus washoensis*	NV	Wa	
79	Altered andesite popcornflower	*Plagiobothrys glomeratus*	NV	St,Wa	
80	Masonic Mtn jewelflower	*Strepthanthus oliganthus*	NV	Es,Ly,Mi	
81	Tiehm peppercress	*Stroganowia tiehmii*	NV	Ly	
82					
83					
84	**Columns =**				
85	D -Mi, Es, Do, Ly, Ch, Wa, St, Ch= Mineral, Esmeralda, Douglas, Lyons, Churchill, Washoe, Storey				